# SALMON CENSUS
# FUNDY NATIONAL PARK
# 1990

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## Introduction

This report is an update of the salmon run counts carried out yearly using the swimthrough technique. Both our salmon rivers, the Upper Salmon and the Point Wolfe Rivers, are surveyed.

This survey is consistent with the Salmon Management Plan (Granger and Priest, 1988) and gives an estimation of the escapement levels reached in our rivers.

**Methodology**

The survey method can be found in Bossé (1988).

The Upper Salmon River System was divided into three sections. The following people were involved in the surveys completed November 2 and 16 1990.

| | |
|---|---|
| Larry Harbidge - Diver<br>George Sinclair - Recorder | Broad River and Forty-Five River |
| Denis Comeau - Diver<br>John Brownlie (Nov.16) - Recorder<br>Eric Olsen (Nov.2) - Recorder | Forks to Black Hole |
| François Granger - Diver<br>Patrick McKinley (Nov.2) - Recorder<br>Allan Nicol (Nov.16) - Recorder | Black Hole to Pumphouse |

The Point Wolfe River was also divided into three sections. The following people were involved in the survey completed October 18, 1990.

| | |
|---|---|
| Francois Granger - Diver<br>Sedgewick Sinclair - Recorder | Confluence to Bennett Brook |
| Denis Comeau - Diver<br>Eric Olsen - Recorder | Bennett Brook to Rattail Trail |
| Patrick McKinley - Diver<br>C.J. Silver - Recorder | Rattail Trail to<br>Point Wolfe Bridge |

**Results**

The numbers and locations where the salmon were found are summarized in Tables I, II and III.

On the first fall survey the Upper Salmon River System contained a total of 36 salmon, of which 27 were grilse and 9 were MSW (multi-sea winter salmon).

Because the water level was very high making it difficult for the divers to count accurately and because the last summer count in late August had yielded 70 salmon a last survey was performed on November 16. This time a total of 40 salmon were counted including 37 grilse and 3 MSW. Most were found in the lower section and had already spawned.

Four grilse were caught from July 15 to October 15, 1989.

An overall figure can not be drawn at this time.

The surveyed sections of the Point Wolfe River contained a total of 51 salmon of which 37 were grilse and 14 were MSW with a ratio of 2.6 grilse for each MSW.

Tables IV and V show an estimate of the actual versus the target egg deposition since the inception of the swimthrough technique in 1983 for the Upper Salmon River and 1985 in the Point Wolfe River.

In the Point Wolfe River the target was never met and reached a new low of 25% this year.

TABLE I

Number of Salmon Observed in the Upper Salmon River on November 2, 1990

| Stretch | Grilse | MSW [1] | Total |
|---|---|---|---|
| Broad River | 9 | 3 | 12 |
| Forty-Five River | 5 | 4 | 9 |
| Forks to Black Hole | 7 | 2 | 9 |
| Black Hole Pools | 4 | 0 | 4 |
| Black Hole to Pumphouse | 2 | 0 | 2 |
| | 27 | 9 | 36 |

(1) MSW : Multi-sea winter salmon

TABLE II

Number of Salmon Observed in the Upper Salmon River on November 16, 1990

| Stretch | Grilse | MSW | Total |
|---|---|---|---|
| Broad River [1] | – | – | – |
| Forty-Five River | 3 | 0 | 3 |
| Forks to Black Hole | 0 | 0 | 0 |
| Black Hole Pools | 6 | 0 | 6 |
| Black Hole to Pumphouse | 28 | 3 | 31 |
| | 37 | 3 | 40 |

(1) Not surveyed

TABLE III

Number of Salmon Observed in the Point Wolfe River in 1990

| Stretch | Grilse | MSW (1) | Total |
|---|---|---|---|
| Confluence to Bennett Brook | 11 | 11 | 22 |
| Bennett Brook to Rattail Trail | 17 | 2 | 19 |
| Rattail Trail to Pt. Wolfe Bridge | 9 | 1 | 10 |
| | 37 | 14 | 51 |

(1) MSW: multi-sea winter salmon

TABLE IV
Actual Versus Target (Required) Egg Deposition From 1983-1990
Upper Salmon River - Fundy National Park

| Year | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|---|---|---|---|---|---|---|---|
| Grilse | 372 | 200 | 276 | 37 | 23 | 33 | 250 | --- |
| MSW | 168 | 183 | 95 | 66 | 29 | 24 | 41 | --- |
| Target Egg Deposition | ---------- | ---------- | ---------- | 207814 | ---------- | ---------- | ---------- | ---------- |
| Estimate of Actual Egg Deposition (2) | 1,326,001 | 1,024,920 | 884,000 | 297,832 | 144,648 | 148,255 | 649,054 | --- |
| Actual/Target x 100 | 638% | 493% | 425% | 143% | 70% | 71% | 312% | --- |

(1) Target Egg Deposition: Total surface of rearing habitat ($86589 m^2$) x 2.4 eggs/$m^2$

(2) Estimate of Target: (#Grilse x $Pf_1$ x $F_1$ x $W_1$) + (#MSW x $Pf_2$ x $F_2$ x $W_2$)

$Pf_1$: Proportion of female Grilse: .72
$Pf_2$: Proportion of female MSW: .55
$W_1$: Average body weight Grilse (kg): 1.67
$W_2$: Average body weight MSW (kg): 4.15
$F_1$: Fecundity Grilse: 1700 eggs/kg
$F_2$: Fecundity MSW: 1475 eggs/kg
From available data in Granger and Priest (1988)

TABLE V

Actual Versus Target (Required) Egg Deposition
From 1985-1990 in the Point Wolfe River - Fundy National Park

| Year | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|---|---|---|---|---|---|
| Grilse | 196 | 66 | 36 | 25 | 161 | 37 |
| MSW | 4 | 29 | 39 | 24 | 17 | 14 |
| Target Egg Deposition (1) | 496,826 | | | | | |
| Estimate of Actual Egg Deposition (2) | 412,542 | 234,212 | 202,360 | 131,902 | 386,331 | 122,765 |
| Actual/Target x 100 | 83% | 47% | 41% | 26% | 78% | 25% |

(1) Target Egg Deposition: Total surface of rearing habitat (207011 $m^2$) x 2.4 eggs/$m^2$

(2) See Table IV for formula

**Discussion**

Salmon counts in the Upper Salmon River are not considered to be accurate this year. The last summer survey yielded 70 salmon (grilse and salmon). Later in the season the water levels were too high making it impossible to obtain a reliable count. The last tentative showed fish that had already spawned and were making their way back to the bay. At best the escapement might have been reached.

The 1987 run yielded only 70% of the target (table IV) and, assuming a smolt age of $2^{+}$, commands a season closure or a catch and release program for 1991 .

The Point Wolfe River target attained a new low this year. It is suggested that this river may not reach its carrying capacity for a good number of years yet. Instead of extending the closed season status moves should be made to give that river a sanctuary status.

**Recommendations**

1. Complete the work started on recommendation 1 of last year's report (Granger, 1990) - Black hole pools vs whole river system counts.

2. Initiate a catch and release program for the 1991 Upper Salmon River fishing season.

3. Close the brook trout fishing season in the Upper Salmon River portion accessible to salmon. See Granger (1988) for substantiation.

4. Following the Salmon Management Plan (Granger and Priest, 1988) the Point Wolfe River is presently closed to salmon fishing untill 1992. Keeping in line with the Waterloo Workshop recommendations it is proposed to formalize that river into a sanctuary status.

5. Make a comment in the Resource Bulletin on catch and release. Contact Shepody Fish and Game Assoc. and the Atlantic Salmon Federation.

6. Keep close contact with Fisheries and Oceans for any new development concerning the low grilse returns.

7. To reviev and obtain more confident data for the estimation of the actual egg deposition, net selected pools in the Point Wolfe River to assess sex and grilse/MSW ratios in addition to length and weight measurements.

8. Bring the already-collected scales (from anglers' returns) to Dept. of Fisheries and Oceans. Data needed are smolt age and adult age. A warden should be trained in salmon scale reading.

**References**

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